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EXAMINER	
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ART UNIT	PAPER NUMBER
1796	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/534,176	MALETZ ET AL.	
	Examiner	Art Unit	
	MICHAEL PEPITONE	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 April 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☒ Claim(s) *3-4* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claim 3 is objected to because of the following informalities: Multiple periods in the claims (See *Fressola v. Manbeck*, 36 USPQ2d 1211 (D.D.C. 1995) [MPEP 608.01(m)]. Appropriate correction is required.

Claim 4 is objected to because of the following informalities: The typo "either claim 2", should be "claim 2". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 19-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 19 and 20 recite particles which have a shape of a torus, and recite a non-porous surface. It is unclear how a particle having a doughnut shaped {torus} is considered to be non-porous, as the definition of a torus requires a hole {pore} within the surface. Therefore, claims 18-19 are indefinite.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 19 is rejected under 35 U.S.C. 102(e) as being anticipated by Jones *et al.* (US 2002/0193463).

Regarding claim 19: Jones *et al.* teaches a filler for dental composite materials (¶ 1-2, 9-10) comprising a polymerizable organic binder and a filler (¶ 65-68), wherein the filler particles are obtained by spray drying and have the shape of a doughnut {torus} with an average external diameter of about 0.2 μm to 20 μm {with a mean size of 5 μm} (¶29, 58); and have a smooth surface (¶ 59, 67).

Claim 20 is rejected under 35 U.S.C. 102(e) as being anticipated by Jones *et al.* (US 2002/0193463).

Regarding claim 20: Jones *et al.* teaches a filler for dental composite materials (¶ 1-2, 9-10) comprising a polymerizable organic binder and a filler (¶ 65-68), wherein the filler particles are obtained by spray drying and have the shape of a doughnut {torus} with an average external diameter of about 0.2 μm to 20 μm {with a mean size of 5 μm} (¶29, 58); and have a smooth {non-porous} surface (¶ 59, 67).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones *et al.* (US 2002/0193463).

Regarding claims 1, 11, and 17: Jones *et al.* teaches a filler for dental composite materials (¶ 1-2, 9-10) comprising a polymerizable organic binder and a filler in a quantity of 5-35 weight% (¶ 65-68), wherein the filler particles are obtained by spray drying and have the shape of a doughnut {torus} with an average external diameter of 0.2 μm to 20 μm {with a mean size of 5 μm} [instant claims 1, 11, and 17] (¶29, 58); the filler particles undergo a heat treatment process at a temperature of about 600 °C {for about 24 h}, which completes the formation of holes within the discs and allows the smooth ovoid or round doughnut shaped

particles to provide a lower residual stress within the matrix resin following polymerization (¶ 59).

Jones *et al.* does not teach post-curing the particles at a temperature of 800 – 1200 °C. However, the Office takes Official Notice that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) [MPEP 2144.05]. At the time of invention a person of ordinary skill in the art would have found it obvious to have optimized the furnace temperature, as taught by Jones *et al.*, as commonly practiced in the art, and would have been motivated to do so since the conversion of silica gel into silica glass, as well as the formation of holes in the discs of the composition is influenced by the temperature of the furnace.

Regarding claims 2-3: Jones *et al.* teaches a filler for dental composite materials comprising a polymerizable organic binder and a shaped filler in a quantity of 5-35 wt% {75-80 wt% total} (¶ 65-68), wherein the filler particles are obtained by spray drying and have the shape of a doughnut {torus} [instant claims 3] with an average external diameter of about 0.2 μm to 20 μm {with a mean size of 5 μm} [instant claim 2], further comprising a silica sol {SiO_2 particles dispersed in polymerizable resin} (¶ 1-2, 9-10, 29, 58, 68).

Regarding claims 4 and 14: Jones *et al.* teaches a shaped filler {torus} in a quantity of 5-35 wt% {75-80 wt% total filler} (¶ 65-68), with examples containing 62 wt% of doughnut shaped particles [instant claims 4 and 14] (¶ 55-56, table 4).

Regarding claims 5-7: Jones *et al.* teaches the filler contains additional fragment shaped and/or spherical shaped inorganic filler particles [instant claim 5] (¶ 31, 25-26, 55), specifically

fumed silica [instant claim 6] (¶ 68) or spherical silica obtained by a silica sol [instant claim 7] (¶ 65).

Regarding claim 8: Jones *et al.* teaches the doughnut {torus} shaped filler particles are silanized (¶ 64).

Regarding claims 9-10: Jones *et al.* teaches the binder includes ethylenically unsaturated monomers and oligomers {bis-GMA, TEGDMA} [instant claim 9] (¶ 66, 68), curable chemically and/or photochemically [instant claim 10] (¶ 66, 68).

Regarding claims 12-13: Jones *et al.* teaches the basic claimed composition [as set forth above with respect to claim 1].

Jones *et al.* does not teach an internal diameter of the torus-shaped filler of 0.2-20 μm [instant claim 12] or 0.2-20 μm [instant claim 13]. However, the Office takes Official Notice that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) [MPEP 2144.05]. At the time of invention a person of ordinary skill in the art would have found it obvious to have optimized the internal diameter, as taught by Jones *et al.*, as commonly practiced in the art, and would have been motivated to do so since the capability of the ceramic filler to mechanically lock into the resin matrix of the composition is influenced by the shape of the filler.

Regarding claims 15-16: Jones *et al.* teaches the filler particles comprise silicon dioxide and/or heavy metal oxides [instant claim 15] (¶ 31-48), specifically zirconium oxide, barium oxide, and strontium oxide [instant claim 16] (¶31-48, 66, 68).

Claims 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones *et al.* (US 2002/0193463)

Regarding claim 18: Jones *et al.* teaches a filler for dental composite materials (¶ 1-2, 9-10) comprising a polymerizable organic binder and a filler in a quantity of 5-35 weight%, wherein the filler particles are obtained by spray drying and have the shape of a doughnut {torus} with an average external diameter of about 5 μm and 15 μm (29, 58, 65-68); the filler particles undergo a heat treatment process at a temperature of about 600 °C {for about 24 h}, which completes the formation of holes within the discs and allows the smooth ovoid or round doughnut shaped particles to provide a lower residual stress within the matrix resin following polymerization (¶ 59).

Jones *et al.* does not teach post-curing the particles at a temperature of 800 – 1200 °C. However, the Office takes Official Notice that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) [MPEP 2144.05]. At the time of invention a person of ordinary skill in the art would have found it obvious to have optimized the furnace temperature, as taught by Jones *et al.*, as commonly practiced in the art, and would have been motivated to do so since the conversion of silica gel into silica glass, as well as the formation of holes in the discs, is influenced by the temperature of the furnace, which allows the smooth ovoid or round doughnut shaped particles to provide a lower residual stress within the matrix resin following polymerization (¶ 59).

Jones *et al.* does not specifically teach a method of filling cavities in teeth with the material. However, at the time of invention a person of ordinary skill in the art would have found

it obvious to have filled cavities in teeth based on the invention of Jones *et al.*, and would have been motivated to do so since Jones *et al.* suggests that the composition is useful as a dental filling material (¶ 1, 27, 68), and is an equivalent alternative means of providing a method of filling teeth with a dental filling material.

Response to Arguments

Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., filler particles that are non-porous, have smooth surfaces, nor do not shrink excessively) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Jones *et al.* (US '463) teaches a filler for dental composite materials (¶ 1-2, 9-10) comprising a polymerizable organic binder and a filler in a quantity of 5-35 weight% (¶ 65-68), wherein the filler particles are obtained by spray drying and have the shape of a doughnut {torus} with an average external diameter of about 0.2 μm to 20 μm {with a mean size of 5 μm} (¶29, 58); the filler particles undergo a heat treatment process at a temperature of about 600 °C {for about 24 h}, which completes the formation of holes within the discs and allows the smooth ovoid or round doughnut shaped particles to provide a lower residual stress within the matrix resin following polymerization (¶ 59).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Pepitone whose telephone number is 571-270-3299. The examiner can normally be reached on M-F, 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo, Ph.D./
Supervisory Patent Examiner, Art Unit 1796
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